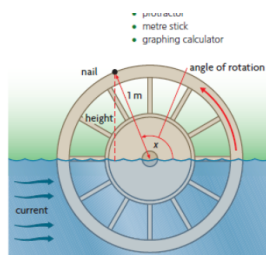


The Sine Function 6.3 and 6.4
p. 335-339 & p. 344-348

INVESTIGATE the Math

Steve uses a generator powered by a water wheel to produce his own electricity.

- Half the water wheel is below the surface of the river.
 - The wheel has a radius of 1 m.
 - The wheel has a nail on its circumference.
- As the current flows, the wheel rotates in a counterclockwise direction to power the generator. The height of the nail, relative to the water level, as the wheel rotates is graphed in terms of the angle of rotation, x .

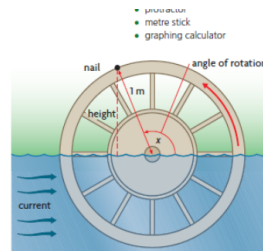


Maximum -
Minimum -
Eqn of Axis of Symmetry -
Period -
Amplitude -

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Maximum - 1 m
Minimum - -1 m
Eqn of Axis of Symmetry - $y = 0$
Period - 360°
Amplitude - 1 m

Nov 16-7:42 AM

Nov 16-7:42 AM

Key Points of Sine Function

$y = \sin x$
(0, 0) - eqn of the axis of symmetry
(90, 1) - maximum
(180, 0) - eqn of the axis
(270, -1) - minimum
(360, 0) - eqn of the axis

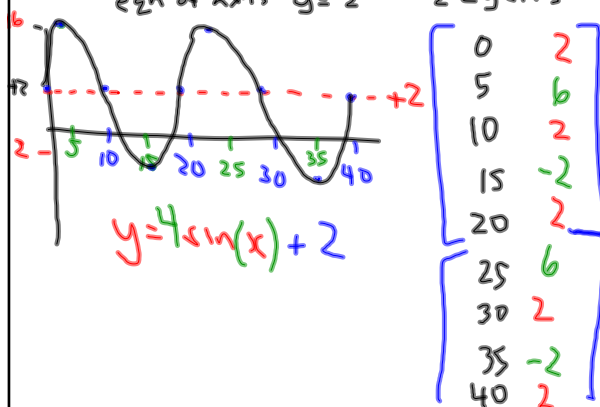
Ex1 Sketch the sinusoidal graph with the following properties
period = 20 amplitude 4
eqn of axis $y = 2$ 2 cycles

Maximum - $(2+4) = 6\text{ m}$
Minimum - $(2-4) = -2$
Eqn of Axis of Symmetry - 2 m
Period - 20 s
Amplitude - 4

Apr 27-10:11 AM

Nov 16-7:47 AM

Ex1 Sketch the sinusoidal graph with the following properties
period = 20 amplitude 4
eqn of axis $y = 2$ 2 cycles



Create Eqn of Sin Function

q. 4 Max = 4, Min = 0.5

$$\text{Amplitude} = \text{Max} - \text{Min} / 2$$

$$4 - 0.5 / 2 = 1.75$$

$$\text{Eqn of Axis} = \text{Max} + \text{Min} / 2$$

$$4 + 0.5 / 2 = 2.25$$

Therefore

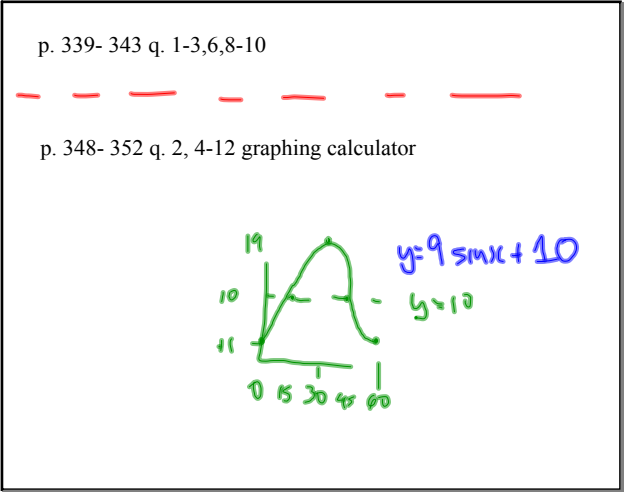
$$y = \sin(x)$$

$$y = a \sin(x) + d$$

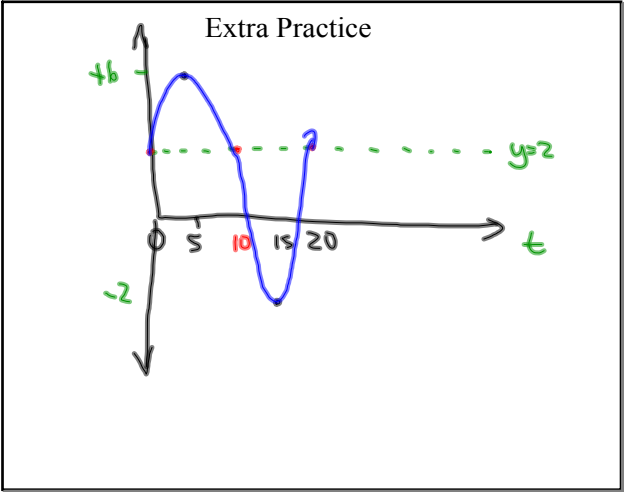
$$y = 1.75 \sin(x) + 2.25$$

Apr 27-10:40 AM

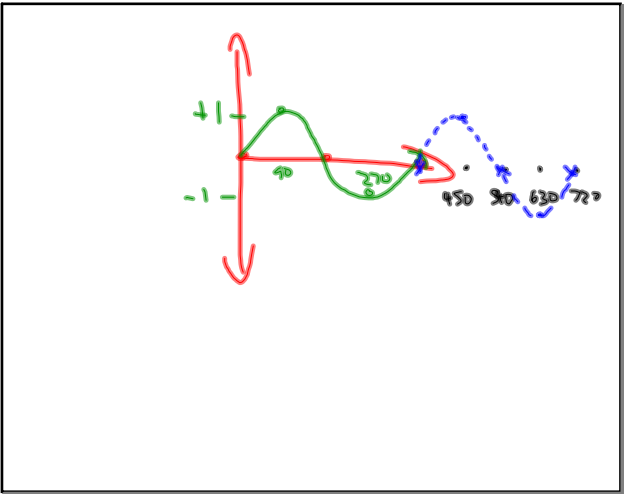
Nov 23-10:01 AM



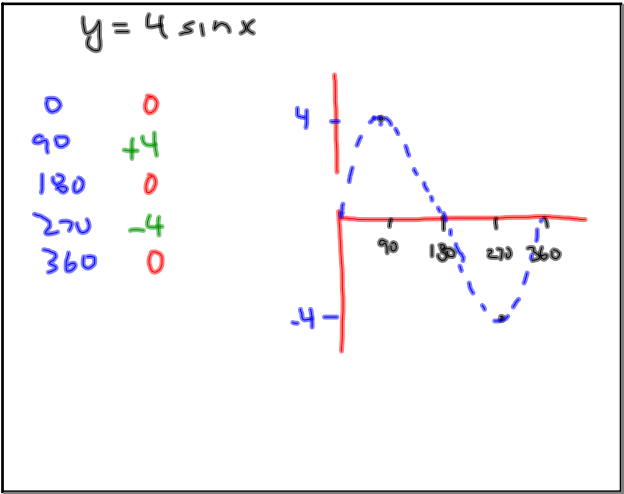
Apr 27-10:52 AM



Apr 19-8:41 AM



Apr 21-10:32 AM



Nov 18-2:50 PM